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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/007,298	11/08/2001	Srikant Jayaraman	PA010495	5335
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Qualcomm Incorporated Patents Department 5775 Morehouse Drive San Diego, CA 92121-1714			LE, LANA N	
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DATE MAILED: 05/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/007,298	Applicant(s) JAYARAMAN ET AL.	
	Examiner Lana Le	Art Unit 2685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,8-16 and 29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,8-16 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1, 9-16, and 29 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 14, 15 and 29 are rejected under 35 U.S.C. 103(a) as being anticipated by Mansouri et al (US 5,715,282) in view of Ramesh et al (US 5,363,407).

Regarding claim 1, Mansouri et al discloses a method for mitigating adjacent channel interference (ACI) in a wireless communication system, comprising:

determining a presence or absence of ACI via 224 in each of one or more frequency ranges in a pre-processed signal comprised of a desired signal component (col 3, lines 24-38);

selecting a particular filter response at 226 from among a plurality of possible filter responses based on the determined presence or absence of ACI in each of the one or more frequency ranges (col 2, lines 57-62); and

filtering the pre-processed signal with the selected filter response (col 2, lines 57-62). Mansouri didn't further disclose:

wherein the presence or absence of ACI in the pre-processed signal is determined via signaling from a transmitter. Ramesh et al discloses wherein the presence or absence of ACI in the pre-processed signal is determined via signaling from a transmitter (col 1, lines 38-42). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have the adjacent channel interference be transmitted from a transmitter in order to allow the receiver to detect the interference information in the receiving antenna when the transmitter causes the interference while broadcasting at an adjacent channel.

Regarding claim 14, Mansouri further discloses the method of claim 1, wherein the plurality of possible filter responses include a fourth filter response selected for use if ACI is determined to be absent from the pre-processed signal (col 2, lines 57-62).

Regarding claim 15, Mansouri et al and Ramesh et al discloses the method of claim 1, wherein Mansouri et al further discloses each of the plurality of possible filter responses is derived to respond to the interference (col 2, lines 57-62) based on a respective hypothesis for the ACI in the pre-processed signal sent via 218 detection of ACI determined in the detection and filter decision algorithm 224 (col 4, lines 5-37). Mansouri and Ramesh et al didn't specifically disclose each of the plurality of possible filter responses is derived to maximize signal to noise and interference ratio (SINR). However, it is well known to have a filter response to maximize SINR. It would have been obvious to one of ordinary skill in the art at the time the invention was made to

maximize SINR to remove the maximum noise and interference to improve the system's efficiency.

Regarding claim 29, Mansouri et al discloses a receiver apparatus 100 (fig. 1) in a wireless communication system, comprising:

means for pre-processing a received signal comprised of a desired signal component (col 2, lines 28-53);

means 224 for determining a presence or absence of adjacent channel interference (ACI) in the pre-processed signal in each of one or more frequency ranges (col 3, lines 24-38); and

means 226 for filtering the pre-processed signal with a particular filter response selected from among a plurality of possible filter responses based on the determined presence or absence of ACI in each of the one or more frequency ranges (col 2, lines 57-62).

Mansouri didn't further disclose:

wherein the presence or absence of ACI in the pre-processed signal is determined via signaling from a transmitter. Ramesh et al discloses wherein the presence or absence of ACI in the pre-processed signal is determined via signaling from a transmitter (col 1, lines 38-42). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have the adjacent channel interference be transmitted from a transmitter in order to allow the receiver to detect the interference information in the receiving antenna when the transmitter causes the interference while broadcasting at an adjacent channel.

2. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mansouri et al (US 5,715,282) in view of Ramesh et al (US 5,363,407) and further in view of Lazar (US 5,818,389).

Regarding claim 16, Mansouri et al and Ramesh et al further discloses the method of claim 15, wherein they specifically disclose each hypothesis is indicative of a hypothesized location and spectral profile for the ACI in the pre-processed signal. Lazar further disclose each hypothesis is indicative of a hypothesized location and spectral profile for the ACI in the pre-processed signal (col 3, lines 51-65; col 5, lines 30-36). However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the filter detection and decision algorithm of Mansouri et al to have a hypothesis that is indicative of a hypothesized location and spectral profile for the ACI in the pre-processed signal in order to detect if interference exists or not by determining the geographic source of interference.

3. Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mansouri et al (US 5,715,282) in view of Ramesh et al (US 5,363,407) and further in view of Meyer et al (WO 00/72454).

Regarding claim 9, Mansouri et al and Ramesh et al further discloses the method of claim 1, wherein they didn't specifically discloses the plurality of possible filter responses are provided by a plurality of sets of filter coefficients by providing respective a set of filter coefficients for each respective response. Meyer et al further discloses the plurality of possible filter responses are provided by a plurality of sets of filter

coefficients by providing respective a set of filter coefficients for each respective response (page 8, line 7 – page 9, line 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a set of filter coefficients in order to have each filter response have its distinction from another response.

Regarding claim 10, Mansouri et al and Ramesh et al further discloses the method of claim 9, wherein they didn't further disclose the plurality of sets of filter coefficients are for a finite impulse response (FIR) filter. Meyer et al discloses wherein the plurality of sets of filter coefficients are for a finite impulse response (FIR) filter (page 8, line 7 – page 9, line 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a FIR filter in order to filter a predefined range of interference only on the side of the spectrum with the larger interference energy.

Regarding claim 11, Mansouri et al and Ramesh et al disclose the method of claim 1, wherein they didn't further disclose the plurality of possible filter responses include a first filter response selected for use if ACI is determined to be present at an upper band-edge of the desired signal component. Meyer et al further discloses the plurality of possible filter responses (col 4, lines 6-17) include a first filter response selected for use if ACI is determined to be present at an upper band-edge of the desired signal component (page 8, lines 5-12). It would have been obvious to one of ordinary skill in the art at the time the invention was made to select one of the filter response

such as FIR in order to filter a predefined range of interference only on the side of the spectrum with the higher interference.

Regarding claim 12, Mansouri et al and Ramesh et al disclose the method of claim 1, wherein they didn't further disclose the plurality of possible filter responses include a second filter response selected for use if ACI is determined to be present at a lower band-edge of the desired signal component. Meyer et al further discloses the plurality of possible filter responses (col 4, lines 6-17) include a first filter response selected for use if ACI is determined to be present at a lower band-edge of the desired signal component (page 8, lines 5-12). It would have been obvious to one of ordinary skill in the art at the time the invention was made to select one of the filter response such as FIR in order to filter a predefined range of interference only on the side of the spectrum with the higher interference.

Regarding claim 13, Mansouri et al and Ramesh et al disclose the method of claim 1, wherein they didn't further disclose the plurality of possible filter responses include a third filter response selected for use if ACI is determined to be present at both an upper band-edge and a lower band-edge of the desired signal component. Meyer et al further discloses the plurality of possible filter responses include a third filter response selected for use if ACI is determined to be present at both an upper band-edge and a lower band-edge of the desired signal component (page 8, line 14-25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to select a different response, i.e. IIR in order to be able to eliminate interference wherever it exists.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lana Le whose telephone number is (703) 308-5836. The examiner can normally be reached on M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (703) 305-4385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Lana Le

April 28, 2004



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